ORIGINAL ARTICLE

Violence as a Public Health Issue

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Abstract. *Violence—homicides, suicides, injuries caused by youth or family acts—continues in the United States. Firearms are involved in most incidents. The Centers for Disease Control and Prevention addresses the problem using the traditional tools of public health: epidemiologic data, individual and societal interventions based on the data, and ongoing evaluations to assess the effects of the interventions and change them if necessary. Examples of interventions are presented.*

Violence has gripped the heart of our nation. It has intimidated the strongest among us and has terrorized communities that lack the social and political support to ensure peace in their neighborhoods. The problem is enormous, and the debate about issues related to violence often is emotional. However, at the Centers for Disease Control and Prevention (CDC), we are convinced that violence is a problem to be solved—not a fact of life.

Because of the enormous contribution of violence to premature death in this country, the number of Americans injured, and the tremendous impact on our health care system, we have identified violence as an important threat to the public's health and we have developed a program in violence prevention that applies a problem-solving approach to the issue—the same public health approach that has been used many times to combat other public health problems, including infectious and chronic diseases, unintentional injuries, such as those caused by car crashes, and environmental hazards. Basically, the approach identifies the scope or magnitude of the problem, studies what puts people at risk for violence and what protects people from that risk, develops inter-

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ventions that address the risk factors, and evaluates the effectiveness of those interventions.

The research program at CDC is one of applied science—research that gains knowledge that will be the catalyst for policy and program development. Complementing the basic science research at other federal agencies, our research is designed to provide the information that will help our nation develop policies and programs to prevent violence at the societal and community levels. In conducting this type of research, we have a responsibility to bridge what we find in the research setting with what will work in the communities where violence occurs. This requires asking the right research questions and rigorously evaluating the impact of our findings. The violence-prevention program at CDC focuses on four priority areas: the prevention of youth violence, family violence, youth suicide, and injuries and deaths caused by firearms.

Epidemiology, the fundamental science of public health, gives us the information to describe the magnitude of the problem and the risk factors for violence. In 1991, for example, 26,500 US citizens died from homicide.[1] Homicide is the second leading cause of death for people 15 to 24 years of age.[1] Homicide is the leading cause of death for blacks, both male and female, in this age group and in the 25- to 34-year-old age group also.[1] Homicide rates for young males have risen dramatically since 1985, but the most dramatic increase has been in the 15- to 19-year-old age group.[2] The homicide rates among young American men are vastly higher than in other Western industrialized nations.[3] We have learned that in homicides in the United States, the victim and assailant usually are males who are acquainted and of the same race. The incident usually starts with an argument and usually is not related to committing another crime, such as robbing a store. Alcohol often is involved, and a firearm is usually present.[4]

In 1991, 30,800 people in the United States committed suicide.[1] We are currently conducting a case-control study that will identify potentially modifiable causes of serious attempted suicide among adolescents and young adults 12 to 34 years of age. The study focuses on the effects of three risk factors: exposure to another

person's suicide or suicide attempt; mobility in society, or migration; and patterns of alcohol use.

Family and intimate violence is another area of grave concern. Of the 5328 women in the United States who died as a result of homicide in 1990,[5] 6 of every 10 were murdered by someone they knew.[6] About half of the six who knew their assailant were murdered by a husband or a boyfriend.[6] More than 99% of assaults on women do not result in death but often result in physical injury or emotional distress.[7] Researchers have determined that in 1985, more than 1.8 million women were assaulted by male partners or cohabitants.[8] Furthermore, battered women are at increased risk for suicide and alcohol and drug abuse.[9]

We are just beginning activities that will improve data collection on family and intimate violence. One important issue that has hindered surveillance efforts in this area is the lack of standard definitions—for example, how to define levels of abuse, physical injury, and psychological injury. To this end, we will bring together a panel of experts in the field of family violence to help establish uniform definitions for types of abuse so that surveillance and research at all levels can be consistent. We also will develop a system that will allow us to gather information on behaviors, such as threatened violence, hitting, or gun use, and on outcomes of this type of violence, such as injuries, deaths, and psychological problems.

We cannot address the issue of violence without considering the role of firearms. The rates of homicides by firearms parallel the increased rate in total homicides, whereas the rate of homicides not involving firearms has remained constant.[10] The national debate about firearms has been historically a political and an emotional issue. At CDC, we have striven to broaden this discussion by adding science to the issue. CDC has been credited with causing a sea change in the national debate on firearms, and until we sponsored this research, no one was looking at the health risks of firearms. We are using scientific methods to look at the risks associated with owning a firearm so that people who make deci-

sions about owning a weapon will have as much valid information as possible about risks and benefits.

What we know from our surveillance is that firearms are involved in more than 60% of violent deaths.[1] We also have learned a great deal about risks from our research. In 1991, 38,300 US citizens were killed with firearms: almost 18,000 from homicides by firearms, 18,500 from suicides by firearms, and 1500 from unintentional deaths by firearms.[1] (The balance of deaths are those for which the intention is not known.) From 1985 through 1991, the risk of dying from a firearm injury increased by 77% for teenagers 15 to 19 years of age.[11]

Researchers who looked at the impact of restrictive handgun policies in Canada compared the homicide rates between 1980 and 1986 in Seattle, Washington, and Vancouver, British Columbia, two cities with very similar demographic profiles.[12] They found that the homicide rate in Seattle was 65% higher than that in Vancouver. Virtually all of this difference was attributable to a five-fold higher rate of handgun homicide in Seattle. They concluded that a regulatory policy that restricts access to handguns may reduce the rate of homicide in a community.

Other studies show that the presence of a gun in a home increased the risk of suicide by those in the home almost five-fold[13] and increased the risk of homicide almost three-fold.[14] Compounding the problem, young people have ready access to firearms. In 1990, the CDC Youth Risk Behavior Survey (a survey of students in grades 9 through 12 throughout the country) showed that 4.1%, or 1 in 24 students, had carried a firearm for fighting or self-defense at least once during the 30 days preceding the survey.[15] In the 1991 survey, this percentage increased to 5.5%, or 1 in 18 students.[16]

The health consequences of violence in our society are enormous, both in death and disability and in psychological impact on people, their families, and the communities in which they live. We are fast approaching the time when more of our citizens will be killed by guns than in motor vehicle crashes.[17] The majority of people killed by violence are very young and, therefore, are

robbed of those years of life when they would do the things that we all look forward to: marry, raise a family, and participate in work and recreation with people they care for. Society, too, is robbed of the contributions that these people could have made. Compounding this tragedy, for everyone who dies from violence, at least 100 people are nonfatally injured.[18]

The cost to our health care system is very high. The estimated cost of direct medical expenses just for treatment of injuries from firearms in 1990 was $1.4 billion.[19] Injuries from all types of violence flood our emergency rooms, hospitals, and doctors' offices. These injuries are preventable. Spinal cord injuries and head and brain trauma, which are quite common with injuries related to firearms, are major causes of lifelong disabilities that result in diminished capacity to function in society and in the need for long-term, expensive rehabilitation and assistance.

We are just beginning to understand the psychological impact on children and adults who are abused or neglected or who witness violence. Abused or neglected children are more likely to abuse their own children later in life.[20] Abused children, as well as those who witness parental violence, are more likely to use physical violence against others when they are older,[21,22] and battered women are at increased risk of attempting suicide, experiencing depression, and abusing alcohol and other drugs.[9] It is hard to imagine, let alone assess, the psychological impact on women and children who live in constant fear of violence in the home, in their schools, and in the streets, where they must walk unprotected daily.

Once we know something about the problem and the risk factors associated with it, we are in a better position to develop or adapt interventions that will clearly target what we know are the prevention issues. A strong program of evaluation will ensure that we stay on target and also will indicate where we need to make changes. CDC's program to prevent youth violence advises communities about what they can do to prevent this violence and evaluates many of the strategies we recommend. These strategies fall into four general categories: changing individual knowledge,

skills, and attitudes; increasing public awareness; changing the physical environment; and changing the social environment.

To change individual knowledge, skills, and attitudes, we must:

- train parents, particularly those at high risk of abusing their children, giving them the skills to take care of both the physical and emotional needs of their children and the skills to handle the pressures of being a parent;
- teach social skills to youth, including very young children, to prepare them for healthy interactions with their peers and adults;
- train youth in conflict resolution, which gives them the skills to resolve conflict nonviolently;
- provide peer mediation, which uses students' skills to guide discussions between students already in conflict;
- mentor young people, an activity that pairs youth with mentors, or special adults who provide a positive, caring influence and a standard of conduct;
- counsel victims of violence so that they do not become perpetrators in order to get even or so that they do not suffer the psychological consequences of being victims.

Increasing public awareness will require:

- public information campaigns in the community to advise people of resources available and to foster social norms that support nonviolent solutions to conflict;
- neighborhood helpers, people in the community who often have special relationships with youth and are trained to be better resources for those youth seeking help with violence issues.

Changes in the physical environment that can make violence less likely include:

- increasing visibility in high-risk areas;
- limiting the access of youth to alcohol, drugs, and firearms.

Needed changes in the social environment include:

- job training and employment, activities in which the business community can play a tremendous role;

- academic enrichment and recreational opportunities;
- adequate and safe housing for youth.

The National Center for Injury Prevention and Control (NCIPC) at CDC evaluates many of the strategies that I have described. We have projects in 14 cities across the country that are evaluating the effectiveness of various interventions. Early intervention is being evaluated in Chicago, Los Angeles, New York City, and Tucson. We are looking at middle school interventions in Detroit; Indianapolis; Houston; New York City; Portland, Oregon; and Richmond, Virginia. We are evaluating interventions for older youth in Boston, Chicago, and New York City. There are community demonstration projects in Brooklyn; Durham, North Carolina; and Houston.

The major health and behavioral outcomes that we will measure over the next several years in these projects are fighting, weapon carrying, verbal insults and threats, disciplinary actions, and physical threats. However, we believe that the problem of youth violence is too urgent to wait for perfect knowledge.

All the strategies that we recommend seem promising, and for some, we have evaluations to support effectiveness in preventing youth violence or other problems that affect our youth. For example, one study showed that regular visits by health practitioners to the homes of unmarried, poor, teenage mothers reduced the incidence of child abuse.[23] In another study, providing training in communication, negotiation, and problem solving to middle school youth with behavioral problems reduced the number of suspensions attributed to violence.[24] An evaluation of the Perry Preschool Program, an intensive Head Start program, showed reduced rates of delinquency and crime among the participants when they reached their teenage years.[25] Other studies showed that laws that prohibit carrying guns in public and that impose a mandatory sentence for crimes committed with a firearm had a small, but positive, effect on reducing firearm homicides.[26–29]

NCIPC's program to prevent family violence was first funded this year. Activities underway will help us:

- understand the problem better by investigating how often this type of violence occurs and which women are at greatest risk;
- evaluate the effectiveness of specific interventions to prevent family violence;
- conduct research that will look at the causes and consequences of family violence;
- train health care professionals to identify victims of family violence and refer them to appropriate resources in the community;
- support a national campaign to make the general public aware of family violence.

Future research in the prevention of violence will have to incorporate socioeconomic issues. We cannot continue to simply focus on individual characteristics and leave out the societal factors. Marked social and economic disparities among Americans contribute to the etiology of violence in fundamental ways that we are only beginning to understand. Poverty, joblessness, and the lack of real employment opportunities may promote violence by generating a sense of frustration, low self-esteem, hopelessness about the future, and family instability. Racism and sexism produce social and economic disparities and contribute to violence by depriving certain segments of society of the opportunities to be successful in school and work. The poor in our society, who are disproportionately African-American, Hispanic, and Native American, do not have equal access to our criminal justice, health care, and educational systems, a fact that makes it more difficult for them to escape from impoverished conditions. CDC and the broader public health community have important contributions to make to understanding and addressing these issues. For example, specific areas where the application of the methods of epidemiology and behavioral science and the principles of public health practice could make important contributions include:

- incorporating indicators of social and economic status into surveillance systems and research studies designed to collect information on violent behavior, injury, or death;
- developing further understanding of the intersection between social and economic inequities and violent behavior. For example, a potential project might undertake research to increase our understanding of how and why poverty is strongly associated with violent behavior or study the role of poverty and joblessness in contributing to violence in the family;
- identifying and evaluating policies, programs, or interventions to reduce the impact of social and economic factors on violent behavior. For example, we might evaluate the impact of efforts to geographically deconcentrate poverty by relocating families from public housing projects to economically diverse communities or evaluate the impact of job training and placement programs in preventing violent behavior;
- investigating and developing community strategies to mitigate the impact of social and economic influences on their residents as a violence-prevention strategy. An example of a potential project is to study how communities conceptualize the relationship between social and economic factors and violence and organize themselves to address these factors;
- developing strategies to communicate violence-prevention information to populations affected by social and economic disparities.

At CDC, we have enjoyed working with the National Research Council in developing plans and priorities to address injury and violence as public health issues. This collaboration has resulted in four landmark reports, including the reports that led to the organization of the injury program at CDC and a report entitled *Understanding and Preventing Violence.*[30] This report has had an important influence on federal research priorities. CDC is cosponsoring two new panels, which will address domestic violence. The first panel will be developing a research agenda for domestic violence, and the second will characterize and assess family violence interventions.

The Board on Children and Families at the National Academy of Sciences will appoint a committee of experts from relevant disciplines and practitioner communities, who will develop a synthesis of the pertinent research and expert opinion regarding the strengths and limitations of existing program interventions in the area of family and intimate violence. The primary tasks of the study will be to document the costs associated with family and intimate violence, to synthesize the relevant research literature and develop a framework for clarifying what is known about suspected risk and protective factors, to characterize what is known about selected interventions in dealing with family and intimate violence, and to identify policy and program elements that appear to improve or inhibit the development of effective responses to family and intimate violence.

We look forward to these and other efforts that will strengthen the ties with the National Academy of Sciences as we move toward our goal of preventing violence in America.

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